IN THE CLAIMS:

Claim 1. (**Previously Presented**) A demodulation method of demodulating an I channel signal and a Q channel signal obtained from a PSK modulated signal comprising:

a skew detection step of detecting an orthogonal skew from a first signal on the I channel side and a second signal on the Q channel side to be inputted into a carrier reproduction circuit; and

a skew correction step of correcting one of the first signal and the second signal based on the orthogonal skew and outputting the corrected signal to the carrier reproduction circuit.

Claim 2. (**Currently Amended**) A demodulation method of demodulating an I channel signal and a Q channel signal obtained from a PSK modulated signal by a semi synchronous detection system comprising:

an amplitude difference comparison step of calculating a difference between a first signal on the I channel side and a second signal on the Q channel side to be inputted into a timing reproduction circuit extracting a signal at timing in synchronization with a based band signal; and

an amplification step of amplifying either signal of the ~~first~~ I channel signal or the ~~second~~ Q channel signal by means of a gain based on the difference calculated at the amplitude difference comparison step and inputting the amplified result into said timing reproduction circuit instead of the first signal or the second signal.

Claim 3. (**Previously Presented**) A demodulation apparatus for demodulating an I channel signal and a Q channel signal obtained from a PSK modulated signal comprising:

a skew detection unit for detecting an orthogonal skew from a first signal on the I channel side and a second signal on the Q channel side to be inputted into a carrier reproduction circuit; and

a skew correction unit for correcting one of the first signal and the second signal based on the orthogonal skew and outputting the corrected signal to the carrier reproduction circuit.

Claim 4. (**Original**) The demodulation apparatus accordingly to claim 3;

wherein said skew detection unit includes an area judgment unit which judges the symbol of the first signal and the second signal is positioned which of the plurality of specified areas where the symbols are positioned in an IQ space according to the amount of phases of the PSK modulation system,

wherein codes of the skew signals are inverted according to the judged result of said area judgment unit.

Claim 5. (**Currently Amended**) A demodulation apparatus which demodulate an I channel signal and a Q channel signal obtained from a PSK modulated signal by a semi synchronous detection system comprising:

an A/D conversion unit which converts a first signal on the I channel side and a second signal on the Q channel side, which are obtained by orthogonally detecting the modulated signal based on a fixed oscillation frequency, into digital signals so as to output sample signals of both the digital signals;

a timing reproduction unit which extracts the sample signals of the first signal and the second signal outputted from said A/D conversion unit with timing in synchronization with a based band signal so as to output the sample signals;

an amplitude difference comparison unit which calculates a difference between a sample signals of the first and the second signal;

a filter unit which smoothes a signal representing the difference calculated in said amplitude difference comparison unit; and

an amplification unit which amplifies either sample signal of the ~~first~~ I channel signal or the ~~second~~ Q channel signal by a gain according to the signal outputted from said filter unit so as to input the amplified result into said timing reproduction unit instead of the sample signal.

Claim 6. (**Previously Presented**) A demodulation method according to claim 1, wherein the skew detection step of calculating symbol amplitudes from the first signal on the I channel side and the second signal on the Q channel side so as to output difference between a calculated symbol amplitudes and a predetermined reference amplitude as skew signals.

Claim 7. (**Previously Presented**) A demodulation method according to claim 1, further comprising:

a sine wave generation step of generating a plurality of orthogonal sine waves based on the orthogonal skew.

Claim 8. (**Previously Presented**) A demodulation method according to claim 1, wherein the skew correction step of multiplying the first signal and a first skew correcting coefficient determined based on the orthogonal skew so as to obtain a first multiplied result, and multiplying the second signal and a second skew correcting coefficient determined based on the orthogonal skew so as to obtain a second multiplied result, and inputting a result obtained by adding the first multiplied result to the second multiplied result into said carrier reproduction circuit.

Claim 9. (**Previously Presented**) A demodulation method according to claim 7, wherein the skew correction step of multiplying a first skew correcting coefficient determined based on one of the two sine waves and the first signal so as to obtain a first multiplied result, and multiplying a second skew correcting coefficient determined based on the other one of the two sine waves and the second signal so as to obtain a second multiplied result, and inputting a result obtained by adding the first multiplied result to the second multiplied result as new second signal into said carrier reproduction circuit.

Claim 10. **(Previously Presented)** A demodulation apparatus according to claim 7, wherein the carrier reproduction unit extracts an I channel signal and a Q channel signal from the corrected signal and one of the first signal and the second signal.

Claim 11. **(Previously Presented)** A demodulation apparatus according to claim 3, wherein the skew detection unit calculates symbol amplitudes represented by the first signal and the second signal so as to output difference between a calculated symbol amplitudes and a predetermined reference amplitude as skew signals.

Claim 12. **(Previously Presented)** A demodulation apparatus according to claim 3, further comprising:

a sine-wave generation unit which generates a plurality of orthogonal sine waves based on the orthogonal skew.

Claim 13. **(Previously Presented)** A demodulation apparatus according to claim 3, wherein the skew correction unit multiplies the first signal and a first skew correcting coefficient determined based on the orthogonal skew so as to obtain a first multiplied result, and multiplying the second signal and a second skew correcting coefficient determined based on the orthogonal skew so as to obtain a second multiplied result, and inputting a result obtained by adding the first multiplied result to the second multiplied result into said carrier reproduction circuit.

Claim 14. (**Previously Presented**) A demodulation method comprising:

receiving a PSK modulated signal;

detecting orthogonally a first signal on the I channel side and a second I signal on the Q channel side from the PSK modulated signal;

detecting an orthogonal skew between the first signal and the second signal; and

correcting one of the first signal and the second signal based on the orthogonal skew.

Claim 15. (**Currently Amended**) A demodulation apparatus for demodulating an I channel signal and a Q channel signal obtained from a PSK modulated signal comprising: an amplitude difference comparator for calculating a difference between a first signal on the I channel side and a second signal on the Q channel side to be inputted into a carrier reproduction circuit; and

an amplifier for amplifying either the ~~first~~ I channel signal or the ~~second~~ Q channel signal by means of a gain based on the difference and inputting the amplified result into the timing reproduction circuit instead of the first signal or the second signal.